have the "minimum efficient scale" (i.e., larger size and combinations do not translate into greater efficiency). In addition, cases where hospital systems reduce and consolidate the physical plants of their operating units into one larger hospital are quite rare.

Most of the research literature has not addressed the issue of scale economies, but rather has examined the impact of systems on hospital costs. Prior reviews suggest that neither hospital mergers nor multi-hospital systems appear to lower hospital costs. More recent evidence suggests that while mergers may reduce costs, multi-hospital system formations like AHERF do not. One explanation is that mergers may lead to capacity reduction, whereas systems have pursued other objectives beside cost management. This appears to be the case in concentrated hospital markets, where hospitals have sought to use larger size to exert market power over payers and raise their prices and reimbursement rates, instead of reducing capacity and costs.

A review of the early literature on multi-hospital system performance during the 1980s reported little evidence of economies of scale, no evidence of efficiency gains (e.g., cost per admission) or increased profitability, no evidence of increased service provision to the community or charity care, and no evidence of improved patient outcomes. Subsequent analyses of local hospital systems in California during the late 1980s and early 1990s similarly concluded that such combinations do not achieve superior production efficiency (cost per admission) or higher growth in output or market share (inpatient days), actually incur higher administrative costs, but may achieve some marketing benefits. A recent longitudinal analysis of rising market concentration in New York State due to hospital systems found no reduction in hospital expenses but a significant increase in revenues. Similarly, a recent study of systems formed around academic medical centers in Philadelphia found no marked impact on several performance measures (e.g., charges, volume, etc.). Finally, a national study of multi-hospital systems finds that system membership exerts few effects on hospital expenditures.

Researchers have also compared the financial performance of *different types* of hospital systems. Using a taxonomy that they developed, Bazzoli and colleagues found that hospitals belonging to highly centralized systems and networks exhibited better financial performance on the same indicators than those belonging to more decentralized

systems and networks, respectively. Finally, Shortell and colleagues have reported that system integration efforts are more easily achieved when system hospitals are clustered in proximate geographic areas rather than dispersed geographically.

How is all of this relevant to AHERF? AHERF built a multi-hospital system that spanned multiple geographic markets. Hospital operations in these markets developed during different eras: Philadelphia hospitals were acquired between 1988 and 1996; Pittsburgh hospitals were acquired between 1996 and 1997. Hospitals in the two regions were overseen by different hospital executives responsible for Eastern vs. Western Region operations, separated by several hundred miles. Each Region also had its own set of planning people (Ian Rawson and Susan Branscum in Pittsburgh, Robert Pavlich and Dr. Kaye in Philadelphia). The two Regions were thus operated largely independently and had separate strategies that evolved differently. The few shared operations included the residency training programs and the expansion of the University, an overall plan for the number of physician practices to be acquired, and starting in Fall 1993 centralized financial functions.

As a result, AHERF had difficulty standardizing its hospital activities across these markets; indeed, AHERF spent considerable time trying to get consistent financial reporting and information across the two regions (e.g., accounting systems, patient billing systems, accounts receivable or AR systems, AR aging methods, financial statement preparation, payroll, etc.). Hospital billing functions for both Regions were eventually centralized in Pittsburgh. As a consequence, executives report that AHERF lost contact with the local people who were sending out the bills and the ability to track down what was or was not paid. Moreover, AHERF attempted this ambitious centralization effort when the major insurers in Philadelphia were engaged in strategies to slow down and deny payment of hospital claims. The result of this consolidation effort was unsuccessful.

AHERF also had difficulty standardizing its hospital operations within the same geographic market, since the acquired hospitals came from different systems (e.g., in Philadelphia these included: United Hospitals, Medical College of Pennsylvania, Hahnemann University, and Graduate Health System). AHERF financial executives

estimate it took them two years to set up the staff to attempt to standardize this information in each Region. AHERF also never attempted to physically merge the operations of its acquired hospitals, and thus could never really hope to achieve any scale economies from its system-building efforts. Efforts to merge the two medical schools at Medical College of Pennsylvania and Hahnemann University (see below) never progressed to encompass the major clinical departments.

One of the reasons AHERF gave for assembling all of these hospitals within a market like Philadelphia was to amass inpatient market share and thereby try to exert leverage over insurers. By controlling more of the hospital capacity in the market, AHERF hoped to obtain more generous reimbursement rates from payers. What AHERF failed to appreciate, however, is that Philadelphia had a lot of hospitals and any system-building efforts would never amass the market share controlled by the two dominant insurers (covered below). Thus the leverage strategy was, at best, difficult to execute and, at worst, a failure in the making. Moreover, AHERF failed to consider that the hospitals it acquired were not the ones that insurers felt they had to include in their contracting networks in order to attract enrollees and employers. That is, AHERF's hospitals were not "must have" hospitals in the eyes of payers or patients. Finally, AHERF (like other hospital systems in the city) found that in order to contract with a payer on behalf of all of its hospitals, it first had to wait for each of its hospital's contracts with a given payer to expire before it could contract for all of them jointly. This factor led to considerable delays in systems being able to come to the bargaining table as one entity seeking a single signature contract. Both considerable time and possession of "must have" hospitals were needed to succeed here; AHERF had neither. The first such system to achieve any leverage - - Jefferson Health System - - succeeded because it brought several prominent hospitals located along the affluent Main Line corridor to the bargaining table, which insurers felt they had to have in their hospital contracting network in order to attract and retain wealthy enrollees in the suburbs. Even then, Jefferson only succeeded with this strategy in 1999-2000. AHERF did not contain any such hospitals in its Eastern Region and ran out of time.

It should also be noted that in amassing these hospitals into a system, AHERF carried along the existing bond debt of each of the acquired hospitals which then had to

be serviced from their current (and usually weak) cash flows. In addition, the acquisitions of new hospitals generated needs for cash (e.g., for structural and/or program improvements, for subsidies to maintain operations, to acquire their community physicians and subsidize them, to help subsidize the education and research functions that AHERF undertook) that conflicted with the need to service the debt and taxed the ability of the hospitals in Pittsburgh to continue to financially support the expansion. AHERF's promises to improve the hospitals it acquired led it to spend substantial sums to fulfill these commitments.

Vertical Integration Strategy

Research on vertical integration in the health care industry shows an even more dismal picture than that for horizontal integration. This research can be subdivided into two broad categories: research examining vertical integration into upstream and downstream businesses generally, and research examining integration into the physician market. Findings from these two categories are summarized below.

One research group has examined the impact of broad vertical integration strategies on hospital performance. Using a sample of California hospitals in 1994, Wang et al. found that forward integration into non-hospital services (e.g., home health, skilled nursing facilities, rehabilitation) exerted a negative impact on a hospital's 'financial success', a construct subsuming such indicators as operating margin, return on assets, net cash flow, and adjusted net patient revenue. Using another sample of hospitals from 1998/99 (the top 100 Integrated Health Networks ranked by SMG Marketing Group), Wan, Ma, and Lin found that forward integration into the continuum of care (e.g., sub-acute and long-term care) reduced hospitals' profit margins and had no impact on hospital efficiency. Wan, Lin, and Ma also studied the efficiency of a large sample of hospital-based IHOs using the Dorenfest Survey of Information Systems in 1998. Similar to the earlier studies, they found that backward integration (e.g., hospital-based outpatient centers) had no impact on efficiency, while forward integration (e.g., skilled nursing care, long-term care) exerted a negative impact on efficiency.

Hospitals can also vertically integrate into the physician market by acquiring primary care physicians (PCPs) in the community. Hospitals typically acquired PCPs by purchasing the tangible and intangible assets of their practices and then placing the physicians on salary. This approach came to be known as the "integrated salary model" (ISM). The ISM approach was undertaken in part to negotiate full-risk capitated contracts with HMOs. While hospitals with ISMs were more likely to have a capitated contract, they were not more likely to have more contracts or more covered lives compared to hospitals without an ISM.

Hospitals also suffered heavy financial losses with the ISM approach. Analysts estimated the losses amounted to roughly $100,000 per year per acquired physician. A study by Longshore & Simmons found that 83% of hospitals lost money on their physician acquisitions, with 44% losing $50,000 or more per PCP per year. A multitude of factors contributed to these losses. They included:

1. Overpayment for practice assets (particularly "goodwill")
2. Impairment of the assets due to insufficient practice cash flows
3. Hospital subsidies of physician 401(k) plans
4. Failure to incorporate productivity and at-risk compensation into the physician's financial package
5. Acquisition of the less productive and lower quality physicians (adverse selection)
6. Decreased physician productivity post-acquisition
7. Hospital inability to manage or operate practices efficiently
8. Allocation of hospital overhead to practices

In addition to the low covered lives and high expenses, hospitals pursuing the ISM approach found they garnered only a slight increase in physician "alignment" with their organizations. Two large-scale studies of physician commitment to IDSs found greater physician commitment among PCPs in the ISM approach compared to physicians in market or alliance relationships with hospitals. While the differences were statistically significant (due to the statistical power afforded by large physician samples), they were small in magnitude and barely above the mid-point of the alignment scales used to measure commitment. Such results beg the question whether the results are (a) substantively important and (b) worth the tremendous financial investment needed to gain the incremental improvement in alignment. Finally, there is some evidence that acquired

physicians are less willing to cooperate with practice guidelines and other care management tools.

More recent research indicates that physician-hospital integration vehicles do not reduce inpatient hospital costs. In an unpublished study, Cuellar and Gertler found that the presence of a vehicle to integrate with physicians did not impact the hospital's cost per inpatient day or cost per patient. In another study, Madison reported that the development of models of physician-hospital integration exerts failed to reduce either the hospital's inpatient expenditures or the intensity of care provided to patients.

How is all of this relevant to AHERF? AHERF acquired a large number of physicians (over 550 physicians in Pittsburgh and Philadelphia) in a very short time period. Because other hospitals (and even insurance companies) in both markets were also interested in PCPs, the acquisition prices were bid upwards and contracts were extended that included no productivity clauses. AHERF sustained large financial losses in the unit that housed its acquired PCPs - - Allegheny Integrated Health Group (AIHG), which later became Allegheny University Medical Practices (AUMP) - - averaging roughly $50 million per year during FY 1996 - 1997. This is consistent with the notion of substantial losses per PCP per year: 550 PCPs multiplied by $100,000 = $55 million. Sherif Abdelhak, AHERF's CEO, justified the high prices paid for these practices on the basis of the anticipated downstream referrals and admissions that the acquired PCPs would make to AHERF hospitals.

In effect, AHERF believed - - as other IDS proponents and adherents did - - that it could help steer the referrals and alter the practice patterns of its acquired PCPs; the theory was that by virtue of ownership there would be easier working relationships between the hospital and the physician, with easier systems for patient admission, follow-up, and case management. However, consistent with the research literature published at the end of the 1990s, acquired physicians are not much more loyal to the system that purchases their practices than are non-acquired physicians, and they may not work as hard. Moreover, the acquired physicians had already developed preferential relationships with other hospitals over the years, which were not going to be quickly changed. In addition, none of the capitated contracts AHERF signed stipulated that the insurer's patients had to use AHERF providers, which allowed enrolled patients to seek care from

competitors (a trend amplified by the shift to open-access insurance plans starting in 1997). Finally, MCP Hospital in Philadelphia did not enjoy an active network of physician supporters who referred patients, or loyal graduates of its residency programs who remained in the community and remained loyal to MCP. As a consequence, AHERF did not see the anticipated gain in referrals from its acquired physicians, which led the CEO to complain that his physicians were disloyal. Insurance executives estimated the patient steerage rate to be as little as 5-10%. Executives at the University of Pennsylvania Health System estimated they captured maybe 20-25% of the referrals of its own acquired PCPs. AHERF system executives gave varying estimates for the referral capture rate, ranging anywhere from 25-60% of the referrals. In sum, AHERF spent a massive amount of money to acquire physicians without achieving the desired "steerage" effect.

AHERF not only failed to realize that acquired physicians are not necessarily loyal physicians. It also failed to consider the main determinants of physician referral and admitting patterns. Research has long demonstrated that the two biggest determinants of where patients get hospitalized are the distance to the hospital from the physician's office and the distance to the hospital from the patient's home. In other words, patients go to the hospital that is located near their doctor and home. They are not likely to travel longer distances (e.g., to downtown hospitals) just because the physician's practice is owned by the system that runs those downtown hospitals. Physicians also make referrals based on long-standing referral patterns with physicians in the surrounding area. They typically don't make referrals to physicians they don't know, even if the physicians are part of the same system. Finally, given that Philadelphia had six medical schools at the time (five allopathic, one osteopathic), many physicians in the area trained at schools that were now part of rival systems to AHERF. Hence, it was just as or even more likely that community physicians would refer patients to academic medical centers where they had trained (and already knew the specialists on staff) rather than to AHERF's teaching hospitals.

AHERF's acquisition of physicians was also dictated to some degree by its acquisition strategy for hospitals. After acquiring a hospital, AHERF felt it needed to acquire the community physicians in the surrounding area in order to try to maintain

existing admission and referral patterns (protect its local base) as well as try to steer referrals to its urban teaching hospitals. Because some of the acquired hospitals were located in less affluent areas, the physician practices that were acquired were also located in such areas. In essence, AHERF bought hospitals that were typically struggling financially, often located in poorer neighborhoods, and with large numbers of Medicaid patients. Then AHERF bought many practices of physicians that were available for purchase and geographically located near the distressed hospitals. Both hospitals and physicians had high caseloads of medical assistance (Medicaid) patients. Executives at the major health insurers had undertaken an analysis of the primary care physicians (PCPs) in the Philadelphia metropolitan area and had classified PCPs into four tiers (A, B, C, and D) based on their managed care caseload and experience with managed care, their medical loss ratios under capitated contracts, the quality of care they provided, their office hours and weekend coverage, their utilization of hospital emergency rooms, their use of specific high-cost procedures, etc. They informed AHERF that it was purchasing physicians in the bottom two tiers (C and D practices) - - i.e., practices of inferior quality with a poor financial profile. Nevertheless, AHERF believed that it could turn these practices around over a five-year period, in part by bringing in recent graduates from its own medical schools who would theoretically know how to work with managed care and could teach the older incumbent physicians in these practices. Even if this were true, the proposed five-year window for AHERF closed before the strategy could run its full course; AHERF's acquisitions of PCPs began in earnest in 1994 and ran through mid-1997. Thus, AHERF did not have enough time to try to succeed with this plan.

AHERF's CEO also subscribed to the prevailing beliefs that (a) there were scale economies in operating large networks of physicians and (b) managers could more efficiently manage physician practices than the physicians could, and thus be able to "turn them around". Both beliefs were accepted by AHERF but proved to be erroneous. At the same time that AHERF was buying up physician practices, Wall Street-financed public companies were pursuing the same strategy. These firms - - known as physician practice management companies (PPMCs) - - propounded the same theories and beliefs in order to attract investors as well as physicians to sell their practices. Both previous as well as subsequent research showed, however, that there were limited scale economies in

managing physician networks. The evidence also showed that neither PPMCs nor hospitals were efficient managers of physician practices. Indeed, research has shown that hospital-operated physician practices are much less profitable than physician-owned and operated practices due to salary guarantees, high overhead costs, and the purchase of marginal performers (as was true in AHERF's case, noted above). Moreover, hospital systems needed to hire large staffs to manage the physician networks, as evidenced by the Allegheny Integrated Health Group (AIHG). AIHG paid a hefty salary to its CEO, who had no prior experience in managing physician networks. AIHG/AHERF also employed lots of staff, much of which duplicated what was already in the physicians' offices (e.g., billing functions). Much of the duplication reportedly resulted from the system's lack of confidence in the practices' own ability to collect on patient bills. This led the system to try to centralize all physicians billing for both the Eastern and Western Regions, which resulted in billing problems and inefficiencies.

Finally, hospital forays into the physician market represented entering a new line of business in which hospitals lacked experience and understanding. In effect, vertical integration with physicians constituted a "new startup". It is not surprising, therefore, that AHERF and its physician subsidiary AIHG made many mistakes, such as acquiring lower-quality practices, expanding the size of the network too rapidly, and making too many commitments to physicians. It is also not surprising that AHERF lost a lot of money pursuing this line of diversification. AHERF learned, for example, that while PCPs may see lots of patients, they billed and received small amounts for these patient visits. That is, the PCP business was a breakeven or low margin business to begin with. When saddled with overhead costs and guaranteed salaries, they turned into a high cost, losing business. The result was large losses at AIHG: $40.9 million in FY 1996, $61.4 million in FY 1997, and $31.7 million in first half of FY 1998.

Geographic Diversification Strategy

AHERF was initially based in Pittsburgh at Allegheny General Hospital (AGH). In its Eastern Region, AHERF entered the Philadelphia market by acquiring (in order) MCP Hospital, United Hospitals, Hahnemann University Hospital, and then Graduate Health System. The Graduate acquisition carried with it two other hospitals in New

Jersey. In its Western Region, AHERF acquired another four hospitals in its own backyard of Pittsburgh: Forbes Health System (Forbes Regional and Forbes Metropolitan), Allegheny Valley Hospital, and Canonsburg General Hospital.

Why is the strategy of geographic diversification undertaken? One main rationale is to diversify market risk and thereby limit the firm's dependence on the particular economic and competitive circumstances in its home market. Another rationale is to enter attractive emerging areas and expand the market for the firm's services and products. A third rationale given is to grow. There are drawbacks as well as advantages of market diversification, however. One possible downside of geographic diversification is that the firm may lack adequate knowledge of the market that it is entering. Another downside is that the firm may spread its capital and managerial capacity too thin over multiple markets. A third downside is the increased difficulty in achieving economies of scale and scope as the firm geographically spreads its plant operations.

All of these difficulties were evident as AHERF moved into Philadelphia. AHERF entered the Philadelphia market without understanding the financial challenges facing all hospitals in the market. Its entry was prompted by the opportunity to acquire MCP Hospital and its medical school. AHERF moved quickly to do so, despite calls from at least one board member for a detailed business analysis of owning and managing a medical school. Executives reported it was hard to comply with the board member's request to perform an analysis of such a complex institution as an academic medical center and affiliated medical school: e.g., difficult to specify all of the revenues and costs given all of the internal transfers and clinical/research income. Executives also reported that the geographic diversification strategy was discussed in terms of its benefits, but not in terms of its risks. None of the AHERF executives or then board members had spent much time in Philadelphia, either. Indeed, the CEOs of AHERF and the University of Pennsylvania Health System (UPHS) were both outsiders who may not have fully appreciated the history and pitfalls of the Philadelphia hospital market. What AHERF acquired was a medical school that was ranked last among the five allopathic schools in the city, ranked near the bottom of medical schools nationally, and one that lacked a solid base of supportive alumni and good clinicians in several areas. MCP also included a small teaching hospital that lacked a pediatrics department. What AHERF entered was a

market that was much more active in managed care than Pittsburgh and would intensify in terms of managed care pressures soon after the MCP acquisition.

By entering Philadelphia, AHERF committed itself to competing in two different geographic markets in Pennsylvania. Over the coming years, AHERF would have to compete in its acquisition of both physicians and hospitals with large systems in both Philadelphia (e.g., University of Pennsylvania Health System, Jefferson Health System, Temple University Hospital, etc) and Pittsburgh (e.g., University of Pittsburgh Medical Center). In terms of state regulations, AHERF achieved no diversification of market risk, since both Pittsburgh and Philadelphia hospitals were subject to the same state Medicaid program. Indeed, by entering Philadelphia, AHERF soon encountered a more active managed care Medicaid environment with a much larger population of Medicaid enrollees than in Pittsburgh, making it more vulnerable to changes in the Medicaid program. With regard to scale economies, AHERF achieved no efficiencies in running hospital operations in both cities since they were 300 miles apart, because they were overseen by separate executives for the Eastern (Philadelphia) and Western (Pittsburgh) Regions, and because there was never an effort to physically merge the operations of hospitals within markets, let alone across markets (e.g., a range of administrative functions).

A comparison of the two cities suggests that AHERF entered a more hostile and competitive environment when it entered Philadelphia, thus compounding its management problems. On the hospital side, Philadelphia had more hospital competitors and a higher degree of hospital competition (as measured by the Hirschman-Herfindahl Index, or HHI). Unlike Pittsburgh (where its base was Allegheny General Hospital), it did not have the number one or number two tertiary care hospital in the market, and thus could not "pull" referrals from community physicians based on its stature and clinical reputation. Instead, it would have to rely (largely unsuccessfully) on trying to "push" referrals from its own physician network to its downtown academic medical centers (MCP and Hahnemann). Unlike Pittsburgh, where there were only two major tertiary care competitors of roughly equivalent reputation (AGH and UPMC), Philadelphia had five academic medical centers of varying reputation competing for specialists and referrals for specialty care. With two of the lowest ranking medical schools in the city,

AHERF was at a competitive disadvantage in luring the more lucrative specialty care business to its facilities. The plethora of medical schools and their affiliated academic medical centers also made it difficult for AHERF (or any other system) to move market share based on the number of hospitals it owned or how many PCPs it acquired.

While the Philadelphia market had several insurers, there were two big payers that controlled the market. Philadelphia also had a large, growing managed care plan (U.S. Healthcare) which altered the dynamics of payer-provider contracting and bargaining before such changes hit Pittsburgh. For example, U.S. Healthcare had already negotiated rates with MCP Hospital that were reportedly below the cost of providing services before AHERF entered the market.

Finally, a host of analyses (presented more fully below) reveal that Philadelphia had higher hospital costs than Pittsburgh. The difference reflects the preponderance of teaching hospitals, high supply levels of beds and specialists, and resulting high levels of inpatient utilization (e.g., inpatient days per 1,000 population, lengths of stay). The higher costs also reflect the additional costs associated with conducting medical teaching and research, extremely high levels of hospital debt in the city (see below), higher utility costs, and higher unskilled labor costs.

Conglomerate Diversification Strategy

As AGH diversified into the operation of multiple hospitals in Philadelphia, it acquired two academic medical centers: Medical College of Pennsylvania (MCP) Hospital and Hahnemann University Hospital (HUH). Each had a medical school. HUH also had a University. During the 1990s, AHERF sought to augment the base of NIH-funded research at these institutions and thus acquired clinical researchers. This represented a move into another set of new business lines that were largely unrelated to AGH's core business of inpatient care. The move broadened AHERF's corporate structure beyond hospitals and physicians to include medical schools and a university. For this reason, the strategy may be labeled conglomerate diversification.

AHERF's evolution into a conglomerate wasn't entirely unplanned or occasioned by the opportunity to buy MCP. It had been encapsulated into AHERF strategy as early as 1982 in a background paper prepared by Sherif Abdelhak (with James Klingensmith)

before he became CEO. The strategy was to develop a major affiliation with a medical school to offset AGH's dependence on UPMC for its residency programs. The strategy also appears to be consistent with the strategy of a former AGH CEO, John Westerman, to develop an integrated delivery system comprising teaching and community hospitals. AHERF consultants identified six medical schools that might be interested in such an affiliation, based on their geographic location. Then, AHERF learned that MCP might be interested in such a relationship from a board member who sat on an MCP oversight group. From that point on, AHERF focused just on MCP as a potential academic partner.

There is no literature or body of evidence on hospital diversification into the medical school education and research business. That is because, before AHERF, no hospital had ever bought a medical school! A strong reason why is that medical schools are expensive to run and typically lose money - - necessitating subsidies from affiliated hospitals. AHERF broke the mold by buying up not only one but two medical schools. AHERF executives estimated its medical school was losing $50-60 million per year.

AHERF sustained losses in the operations of the two medical schools - - reportedly $60,000 per student, and $50-60 million per year. The University was reportedly losing $13 million per month under AHERF management, according to MBIA. These losses were subsidized by AHERF's hospitals, which reportedly paid $65 million annually for the teaching affiliation and the ability to get residents and new medical graduates. System documents indicate that AGH paid a large share of these payments - - including $29.1 million to support the school of medicine on the AGH campus. AHERF also made financial commitments to upgrade its medical schools and associated facilities. As part of the MCP deal, AGH agreed to give MCP an annual subsidy of $4.6 million over a three-year period, or a total commitment of roughly $14 million in capital. Based on AGH's performance, AGH and other AHERF entities might then be expected to contribute 15% of their excess revenues over expenses after that to support the medical school. The monies were designed to renovate research labs, acquire and renovate new buildings, recruit new faculty, and recruit new department chairs. When AHERF acquired Hahnemann in 1993, AHERF reportedly committed $40 million to help improve that institution.

AHERF spent a considerable sum of money in recruiting clinical researchers to its medical schools and the Allegheny University of the Health Sciences in order to increase their level of NIH funding, and thereby compete in terms of prestige with the University of Pennsylvania Health System and UPMC. The increase in NIH funding experienced by AHERF was likely accompanied by the same dynamic observed at the University of Pennsylvania School of Medicine and other research institutions: NIH grant monies do not fully cover the cost of the research being conducted (at least during the early stages), and thus contribute to further losses. One reason for this is that academic medical centers (AMCs) subsidize lots of researchers' salaries before they can become fully-funded through extramural grants; during this period of time, the AMCs lose money on research.

Over time, as AHERF acquired more educational and research capacity, it made more commitments to support their educational and research endeavors. Starting from a modest annual subsidy of $4.6 million, AHERF's commitment grew to roughly $65 million per year - - payments made by AHERF's hospitals. However, AHERF couldn't acquire enough hospitals to subsidize this; it could not acquire its way out of this problem. In short, the conglomerate strategy increased AHERF's expenses, putting added pressure on its core hospital business to subsidize yet another diversified activity.

Finally, it should be noted that AHERF diversified into the operations of academic medical centers (AMCs) at a time when insurer reimbursement and federal financial support for these centers began to wane. During the mid-1990s, the total margins of AMCs declined earlier and more sharply than the margins of all other hospitals, due to lower payment-to-cost ratios (PCRs) from private payers and the lower increases in Medicare PCRs. AMCs also exhibited some other unfortunate characteristics which hurt their levels of reimbursement: a higher percentage of gross uncompensated care, a higher percentage of total costs based on Medicaid, and a lower percentage of total costs based on Medicare and private pay.

Risk Contract Diversification Strategy

AHERF pursued a fourth type of diversification as well: entrance into risk contracts with insurance companies. That is, around 1994 AHERF transitioned from

providing physician and hospital care to insurers on a fee-for-service basis, to a risk model whereby AHERF accepted a capitated premium for each enrollee of the insurer to provide necessary physician and hospital care during the contract year. The theory here rested on several questionable pillars:

- the system could coordinate the primary and specialty care of its enrollees and thereby control its costs
- the system could capture enough of the stream of specialist referrals from its PCPs to its area hospitals to make the contracts worthwhile
- building a network of PCPs could help AHERF capture primary care market share, constitute a big addition to the primary care component of any managed care organization (MCO), increase AHERF's role as a contracting partner, and help leverage higher rates from the MCO
- AHERF would care for at-risk patients in its own physician offices and hospitals, and manage their illnesses well, such that they wouldn't need as much hospitalization
- risk contracts with MCOs would help the system's hospitals to build new relationships with payers to get both parties on the same side of the table in managing patient care
- the MCOs are "not going to lower their premiums to screw us"
- risk contracts would help boost hospital revenues: e.g., as the MCOs' business volume rose, the hospital system would get a percentage of a growing revenue base, and increase this percentage as it increased its leverage over the payers
- MCOs could only reap so much savings as an outside third party; future savings would come from providers engaging in risk contracting
- the actuaries hired by AHERF could come up with the right number for the percent of premium it could accept and manage

AHERF entered capitated contracts for other reasons as well: until the late 1990s, capitation was in vogue in the hospital industry, management felt that capitation would spread across the country and become the norm, and management felt that the experience of California and Minnesota with managed care would be replicated elsewhere.

There is no research base to evaluate hospital risk contracts with insurers, but there is a base of evidence regarding hospitals entering into the risk contracting business by forming their own health maintenance organizations (HMOs). This literature is quite clear and consistent: hospitals typically lose millions of dollars in establishing their own health plans. A major reason is that hospitals have none of the capabilities that insurers

have to underwrite and manage risk. For example, hospitals lack the information systems to keep track of their enrolled membership, analyze their historical utilization experience and costs, and then predict what next year's utilization might be in order to set prices (e.g., capitated premiums). Hospitals lack this information because it has historically resided in the databases of the insurance companies who process member claims for physician and hospital services. As a consequence, hospitals don't know what it costs them to provide care to enrolled members and what the appropriate premiums will be to cover these costs.

Another reason why hospitals fail in the insurance business is that they try to grow too quickly in order to match up in size with the larger, already established insurance plans. To grow quickly, the hospitals underbid contracts (i.e., set premiums too low) in order to attract the capitated business. Hospitals that try to grow quickly often find they lack the necessary managed care infrastructure to manage the contracts they have entered. Thus, for example, they are unable to process the large volume of claims, they lack the needed disease management programs and health status assessment tools to flag and manage high-risk cases, they lack information systems to track how their physicians and hospitals are controlling utilization, they lack executives with managed care experience, and thus they lack executives skilled at bargaining and negotiation with insurers.

AHERF certainly fell prey to these problems in its own risk contracts. AHERF had no prior experience with risk contracts. No such contracts had been developed in its home market of Pittsburgh. It was another totally unfamiliar business line; managing risk was yet another new start-up. Moreover, it was a complex new business: hospitals had to negotiate with lots of payers for lots of different products/plans using lots of contracts that were quite long and detailed. AHERF executives readily admitted that they didn't really know what risk contracting meant and that their risk contracts were "not ready for prime time". Finally, they were not called risk contracts for nothing; they were literally "risky" to enter into. The margins in risk contracts are quite thin, such that a few percentage points variance in the premium you accept as revenue for assuming the utilization risk of an enrolled population can mean big losses.

One problem with the risk contracts signed by AHERF was the low percent of premium it agreed to accept from USHC. AHERF's contract with USHC gave the insurer between 25-26% for administration and profit, whereas other systems in Philadelphia signed contracts giving USHC only 17-18%. Moreover, unlike some other systems, AHERF signed a contract with no stipulated, absolute dollar floor below which the premium could go. Thus, contrary to what AHERF expected, premiums did fall and AHERF underwrote most of the decline. Third, AHERF signed a ten-year contract that made it hard for it to exit, but which gave it a long-term liability.

Illustration of Risks and Losses Under Risk Contracts

As an illustration (which comes close to the real AHERF situation), assume U.S. Healthcare contracts with employers for their employees at a premium of $150 per member per month (pmpm), with a medical loss ratio (MLR = utilization expenditures divided by premium income) of 75%, or $112.50 pmpm. AHERF decides it should contract with USHC for 75% of the premium, or the $112.50 pmpm (annualized at $1,350). With an enrollee base of 100,000 members, this will generate 100,000 x $1,350 = $135 million per year. AHERF then estimates that its own cost is 95%, such that it will earn 5% of the $135 million as income, or $6-7 million profit.

Two factors then complicate the situation for AHERF. First, USHC decides to lower its premium to employers in order to compete with Blue Cross in a very competitive insurer market in Philadelphia. USHC lowers its premium to $125 pmpm. AHERF has no recourse but to accept this because it has not negotiated with USHC a "floor" beyond which the premium can fall, and because it has signed a 10-year "evergreen" agreement with USHC that renews every year for another 10 years and has no "out" clause. AHERF is thus caught in the middle of a price war between two large insurers, who are cutting premiums to grab market share.

As USHC's premium drops from $150 to $125, AHERF gets 75% of a reduced amount: 75% x $125 = $93.75 pmpm (annualized at $1,125). The absolute revenue loss to AHERF is $135 million less $112.5 million, or $22.5 million. Given its original cost estimate of 95%, AHERF is taking in only $112.5 million in revenues but still incurring

$128.25 million in expenses, leading to a loss of nearly $16 million. Moreover, AHERF discovers that its cost is not really 95% but actually 106%. Consequently, they are losing dollars they did not really anticipate because they were not really managing the risks well. Unfortunately for AHERF, its agreement with USHC contains no provision for obtaining information from USHC on how AHERF is performing financially under the contract.

As the illustration shows, a major reason why AHERF was at such a disadvantage in these contracts is that it lacked information on the utilization history of the patients for whom they assumed risk. This had several big ramifications.

First, because it lacked good actuarial data on its patient population, AHERF could not set adequate premiums rates for the risks it was assuming. AHERF ended up with premiums that were much lower than those negotiated by other IDSs in the Philadelphia market - - premiums that caused AHERF to experience significant financial losses.

Second, due to its poor information systems, AHERF could not maintain ongoing information on the utilization among its at-risk lives and was therefore dependent on the insurers (from whom it received responsibility and liability for the at-risk lives) for such information. The insurers, quite naturally, did not supply the information that AHERF needed to successfully price and manage the risk contracts. USHC offered to sell AHERF the information, but AHERF balked at the price (reportedly $1 million up-front plus $500,000 per year after that). Instead of having more detailed, physician level, and real-time data to examine, AHERF received aggregate paper-based reports and "information downloads" that initially were not very helpful. As a result, AHERF did not know how poorly it was performing financially under the risk contracts until the losses started to pile up.

Third, lacking detailed information, AHERF could not conduct any provider profiling and feedback on their performance. As a result, AHERF could not show its physicians (a) that they were indeed losing money on USHC patients and (b) why they were losing money on USHC patients. It was thus hampered in its efforts to help its acquired physicians and hospitals to manage the risks they had assumed in the risk contracts.

Fourth, without such information, AHERF could not accurately track "out of network" costs and utilization (e.g., when a USHC patient for whom AHERF had assumed responsibility sought care from a non-AHERF

hospital or physician). Without such information, it was difficult for AHERF to conduct medical management for the patients it had assumed responsibility for. More importantly, AHERF's contract with USHC did not include any clause that required capitated enrollees to utilize AHERF hospitals and thereby stay "in the network". This omission led to a bigger financial exposure than for the within-network utilization.

AHERF's response to the losses was two-fold: try to negotiate higher rates (higher percent of premium) with insurers, and try to develop care management programs. Because of the long-term contract it had signed, AHERF had no opportunity to renegotiate the contract and obtain a higher percent of premium. AHERF ultimately had to resort at the end of 1997 to breach of contract (not the strongest bargaining position) in order to seek a higher percentage. With regard to care management, AHERF hired on more nursing staff as case/care managers to economize on patient utilization using such techniques as phone-based disease management for pediatric asthma patients, care coordination systems, and prevention. The thinking here was that AHERF could compensate for the low premium rates it had negotiated with lots of medical management. The payoffs here were reportedly small, compared to the large losses incurred due to inadequate premiums.

To be sure, AHERF was limited in how much it could control the costs and losses under these capitated contracts. It is well known in the actuarial industry that no amount of care management can make up for poorly-negotiated (i.e., low) rates of reimbursement. AHERF was also hampered by having lots of expensive physician practices based at academic medical centers, which reportedly attracted more sickly patients and thus more expensive risks to manage, and treated them in more costly settings. This is bad news when a hospital's rates are fixed and its costs are rising.

USHC executives pointed out that AHERF took risk on a large book of capitated business (roughly 100,000 lives) all at once at all of its Philadelphia hospitals. There was no experimentation with risk contracts on a smaller scale or with a healthy population - - such as their own employees - - on whom they could learn the risk management business. Like other strategies, AHERF was in a hurry to get into the capitated contracting business and felt it needed to get to market first with these contracts to out-compete other systems in the city. Like other systems (e.g.. UPHS), AHERF tried to do everything at once:

negotiate the capitated contracts, buy the PCPs to form the network of providers to manage the patients and their health risks, and build the information systems to track their utilization. Looking back, UPHS executives point out that a better strategy would have been to first form the PCP network, then develop the information systems, and after that enter into risk contracts.

AHERF conducted the same strategy of risk diversification in the Pittsburgh market. The largest HMO in the market, Health America, had entered Pittsburgh in the 1980s and quickly ramped up its enrollee base to several hundred thousand. A contract dispute with the University of Pittsburgh Medical Center (UPMC), the arch rival of AGH, led Health America to offer 245,000 risk lives as a bundle to AGH's contracting network in early 1997. AHERF, the corporate parent of AGH, and its network of physicians (Allegheny Integrated Health Group, or AIHG) had arranged to buy a group of physicians from Health America to beef up its vertical integration strategy in Pittsburgh. The deal to buy the group was coupled with a 10-year capitated risk contract to assume responsibility for the 295,000 Health America enrollees. Following the course previously adopted in Philadelphia, AHERF accepted a low percent of premium (78%) to care for these enrollees.

Also as in Philadelphia, AHERF lacked any accounting system to manage these risks and track incurred but not reported reserves (IBNR). It thus had no way of knowing whether or not it was making or losing money on the contract. During the first year of the contract, Health America did not furnish specific claims information to help AHERF in any way to assess profitability. It was not until March or April of 1998 (one year later) that AHERF knew for certain it was losing a substantial sum on the contract. Part of the reason was that Pittsburgh physicians were not accustomed to working in a managed care environment, resulting in very high pmpm costs. Another reason was that, as with USHC in Philadelphia, there were no stipulations that Health America enrollees had to use AHERF facilities. Thus, the enrollees could seek care anywhere and AHERF would be required to pay for the care; if AHERF did not own the hospital or physician offices where enrollees sought care, it had even less control over what the practitioners performed.

3. AHERF's Joint Pursuit of Multiple, Questionable Strategies

From the viewpoint of corporate strategy, AGH (and later AHERF) pursued multiple strategies of diversification *at the same time*. Each of the strategies above can entail significant losses. In AHERF's case, losses were sustained in each area that compounded one another. Across these areas, AHERF's strategy was reportedly "buy, buy, buy" and "grow, grow, grow" - - a strategy that led to the acquisition of two medical schools, fourteen hospitals, 550+ physicians, and lots of clinical researchers. AHERF's experience typifies that of other IDSs: the more they invested in IDS strategies, the bigger were their losses (e.g., bigger declines over time in operating and net margins and return on assets, bigger increase in long-term debt).

There are other reasons why the joint pursuit of multiple strategies may harm financial performance. First, the firm's management may have limited understanding of one or more of the strategies being pursued; moreover, research shows the Board of Directors typically understands even less than management. Second, the firm's management has limited time and ability to monitor the success of each of the multiple strategies pursued. Third, the firm's management may have limited resources needed to finance each of the strategies pursued. Fourth, the firm's management may not recognize that the multiple strategies pursued often conflict with one another. Fifth, by pursuing these strategies simultaneously, the firm may attempt to grow in too many directions too quickly, leading to a growth in expensive corporate overhead that has to be borne by the operating units. At the same time, the firm can take its eyes off of its operations and finances.

Consistent with other IDS adherents, AHERF's motivation was clearly to grow big and grow quickly. The CEO was quoted as stating, "You cannot stop a freight train traveling 70 miles per hour." In pursuit of this fast growth, AHERF embraced every one of the major integration strategies being propounded by healthcare industry consultants at the time: horizontal integration, vertical integration, and diversification into capitated risk contracts. The fact that there was no evidence base to support and validate the pursuit of these strategies did not deter AHERF. What distinguishes AHERF, however, is the speed and scale of investment in these strategies. Multiple hospital systems were acquired in the same market in a period of eight years (1988-1996); hundreds of physicians were

likewise acquired within a span of five years (1993-1997); AHERF entered multiple geographic markets in a span of eight years (1988-1996). While AHERF did not pay cash for the hospital acquisitions (it instead acquired their existing debt, which totaled hundreds of millions of dollars), it did take on operating expenses including debt service, it did make cash commitments for capital expenditures, and it did pay cash for the practices of the physicians it acquired.

To be sure, there were other explanations behind AHERF's shopping and spending spree. First, AGH and then AHERF could initially afford to go shopping for all of the assets it acquired. Research suggests that systems like AHERF engaged in IDS strategies because they could; they had free cash flows (generated during the more generous reimbursement environment of the 1980s and early 1990s) which could be utilized for acquisitions. As some executives expressed it, "Have money, will travel". Second, AHERF suffered from an inferiority complex in both of its main markets. In Pittsburgh, it was trying to catch up to the AMC-status of the University of Pittsburgh Medical Center (UPMC); that is why it sought a major medical school affiliation from the beginning. In Philadelphia, AHERF was trying to catch up to the research status and prestige of UPHS and Jefferson; that is why it built up its own stable of clinical researchers in its two AMCs. Thus, AHERF was playing catch-up in both markets. Consequently, there was some similarity between the actions of the CEOs of UPMC and UPHS and AHERF's CEO. Observers characterized this similarity as emulation and a herd mentality; others characterized it as defensive in nature - - trying to keep up with the competition. Regardless of the characterization, the effect was the same: the actions of one rival spurred on the actions of the other. In Pittsburgh, UPMC's rapid effort at hospital system building was followed by AHERF's acquisition of the Forbes, Allegheny Valley, and Canonsburg hospitals. In Philadelphia, UPHS' massive expansion into the PCP market starting in late 1993 was quickly followed by AHERF's own sizeable investment in the same market. Third, AHERF and other systems were responding to the perceived call for and legitimation of IDSs by the Federal Government in the form of the proposed Clinton Health Plan. Indeed, AHERF's Delaware Valley Planning Initiative in October 1993 followed closely on the heels of the Clinton's proposed healthcare reform, which prescribed large networks of providers contracting on a risk basis with organized

purchasers of care. The IDS strategy was also seemingly legitimated by virtue of the fact that other large systems were already pursuing it. In Philadelphia, local competitors and industry observers claimed that the "smart guys over at Penn [University of Pennsylvania] are doing it".

By moving so quickly into these different strategies, AHERF's top management took its eyes off of its core business. Initially, the core business was Allegheny General Hospital in Pittsburgh. In the mid-1980s, AGH was a prosperous, highly-regarded tertiary care hospital with leading market share in the Pittsburgh area. Rivalry with UPMC and fears that UPMC might shut AGH out of UPMC's residency programs, however, led AGH to seek a major medical school affiliation - - which ended in the acquisition of MCP Hospital and Medical School in Philadelphia. Unfortunately, as noted above, MCP had major weaknesses in its clinical programs (e.g., pediatrics), academic stature, and referral base. AHERF's desire to build up a network of hospitals to support and complement its first Philadelphia acquisition, MCP Hospital, led it to quickly consummate deals with questionable "pro formas", few financial projections, and no business plans for how to integrate the acquisitions into AHERF's existing base of hospitals.

The acquisition of MCP and United gave AHERF a hospital base in Philadelphia. Now its core business had become tertiary and community hospitals in two markets. After the acquisition of these hospitals, the strategy broadened to include the acquisition of a university, another medical school, hundreds of physicians, and risk contracts. Now the core business was a conglomerate. What AHERF failed to acknowledge even to itself was that, with the exception of AGH, all of its hospitals were poor financial performers and low-margin businesses. As a result, AHERF acquired lots of financially struggling hospitals - - indeed, most of these hospitals had flirted with bankruptcy in prior years, and might have filed before 1998 if not acquired by AHERF - - with cash flow problems, lots of existing debt that needed to be serviced, a high level of accounts receivable in some cases, and poor patient mix. For example, Hahnemann University had defaulted on an earlier series of bonds. Thus, the strategy of diversification and growth took priority over fiscal restraint.

As another example, the financial problems at Graduate were well-known prior to the acquisition in Summer 1996. For example, Graduate Hospital had initially been part of the University of Pennsylvania, but continuing financial troubles led Penn to spin it off in 1977. Graduate soon formed a multi-hospital system through a series of acquisitions of financially troubled hospitals in the late 1980s (Mt. Sinai Hospital) and early 1990s (Osteopathic Hospitals). The new Graduate Health System also started up its own HMO, Greater Atlantic Health. Graduate then tried to form an IDS-type partnership with IBC in 1994, which fell apart when it became apparent that IBC only wanted the insurance portion of Graduate. In June 1995, Graduate sold its Atlantic insurance plan to an IBC rival, HSI, which was followed within six months by a contract squabble with IBC in 1996. This conflict led to a cancellation of the insurer's contract with Graduate, a loss in Graduate's ability to recruit physicians to practice at its facilities, and Graduate's loss of patients from the market's largest insurer. By early 1996, Graduate was suffering a decline in admissions, inpatient days, average daily census, length of stay, and poor cash flow; indeed, minutes from the Graduate Board meeting in February 1996 refer to the system's "bleak picture". By July 1996, Moody's Investors Service downgraded the debt on Graduate from BAA1 to Baa, which was the lowest investment grade rating (just above junk bond status). One month later, the debt was downgraded again to Ba (junk bond status). Graduate's auditor, Deloitte & Touche, issued a letter regarding the Osteopathic hospitals stating they may be unable to meet their obligations in the upcoming 12-month period due to poor financial performance. Graduate's deal with AHERF was partly motivated to restore the IBC contract and resume the flow of IBC patients to Graduate; the deal was also motivated by a desire to further implement the IDS strategy that Graduate itself had attempted earlier with IBC; finally, it is likely that the deal was motivated by a desire on behalf of Graduate executives to escape their bleak situation. AHERF was thus seen (by both Graduate and AHERF's own CEO) as the "hero" who came to Graduate's rescue.

AHERF's management of its insurance contracts provides another example of the loss of financial oversight. The rise of HMOs in the Philadelphia market captured the attention of hospital executives throughout the city, especially when a big insurer like U.S. Healthcare had launched an HMO product to take market share away from

Independence Blue Cross (IBC), which had only indemnity products. Hospitals mistakenly viewed the HMO business as a marginal business (i.e., involving a few cases) and a marginal cost business (i.e., the rates paid to them at least exceeded their marginal costs). They willingly agreed to contract with U.S. Healthcare at reduced rates rather than seek payments that would cover more of the full costs of this book of business -- thinking it was a small number of cases that could help them improve their market share a bit. The losses that were subsequently sustained here were one impetus for the hospital's subsequent desire for capitated risk contracts, which occasioned further losses.

The push for HMO contracts and capitated contracts also led hospitals to dwell on the managed care side of its patient base, and ignore the fee-for-service (indemnity) side of its patient base. Hospitals looked to IBC for higher rates in the indemnity business to help make up for the reduced revenue on the managed care contracts. However, after the emergence of USHC's HMO product, hospitals watched IBC launch its own managed care products and begin transitioning away from indemnity business. IBC also employed a "prudent buyer" clause -- similar to a most favored nation clause, in which the insurer who has the greatest market share gets the best price -- to force hospital rates down below those obtained by USHC. Hospitals did not anticipate IBC's move into managed care and the rapid transitioning of business away from the indemnity side. As a result, managed care became the primary business of hospitals, not a marginal business. But hospitals were now stuck with prices barely covering marginal costs as the two big insurers competed with one another for market share (e.g., by dropping their premiums to employers and forcing down the rates paid to providers). The result was an increase in managed care volume paid at much lower rates -- in effect, a double whammy on the hospitals. AHERF was at a particular disadvantage here, relative to other hospital systems in Philadelphia, because it failed to negotiate prudent buyer deals early with IBC when it could have obtained better terms.

The shift in focus on managed care and capitated contracts also caused hospitals to lose sight of their core business as a hospital in another manner. The advent of managed care led hospitals to mistakenly view themselves as insurers and bearers of risk, rather than as providers of inpatient services. As a result, hospitals lost sight of the need to manage their internal operations efficiently. AHERF's entry into the capitated risk

market was more pronounced than its competitors in Philadelphia. System expansion in general (diversification into other hospitals, physicians, teaching and research) similarly consumed executive time needed to manage their internal hospital operations.

The Perceived Need for Speed

Why was speed of the essence in AHERF's strategic thinking? There are several explanations. First, the spirit of the times was insecurity and fear as managed care began to spread, both nationally as well as in Philadelphia. Hospitals and hospital systems like AHERF felt they had to respond to the growth of HMO plans by engaging in the strategies propounded by consultants. For example, starting in the mid-to-late 1980s and then picking up in the early 1990s, hospitals in Philadelphia began discussions about affiliating with one another in joint ventures, cooperative networks, and common asset-based systems. The local newspapers continually ran stories about "who is talking to whom" about affiliating. The environment became characterized as a game of "musical chairs" in which hospitals would be left out when the music stopped. The competition among hospitals to acquire hospitals and PCPs in the Philadelphia market was likewise referred to as a "frenzy" and "hysteria". Nationally, academics likened the situation to a dating scene whereby hospitals were looking for the right partner to "take to the big dance". Given this environment, CEOs did not want to left behind.

Second, AHERF's CEO felt that the acquisition deals he negotiated might fall apart if the deals were not consummated quickly. This is evident in AHERF's acquisition of United Hospitals, where the CEO believed that other rival system might bid for the assets of St. Christopher's Hospital for Children. This was the hospital that AHERF coveted in order to shore up the weakness in the pediatrics program at MCP Hospital. To forestall this outcome and ensure AHERF acquired St. Christophers, it bid for the assets of the entire United system. This is also evident in AHERF's acquisition of Hahnemann University Hospital and Medical School, where any delays in the acquisition might have allowed dissatisfied faculty physicians at MCP to torpedo the deal.

This is also clearly evident in the acquisition of Graduate Health System in 1996. An examination of the Graduate deal suggests that the speed of acquisition trumped any concern over the financial problems underlying the system. The Board of Graduate

hastily called a meeting in early August of 1996 to discuss a possible acquisition by AHERF because "AHERF wanted to move quickly". Graduate's CEO was about to travel to Europe on vacation and AHERF's CEO felt pressure to close the deal. Indeed, several executives characterized the CEO at AHERF as "impatient". AHERF was also concerned that one of its rivals, such as the University of Pennsylvania Health System, might re-acquire Graduate hospital. Adding fuel to such rumors, Graduate was known to have been talking to other possible suitors (e.g., Penn, Jefferson, Temple, Crozer-Chester). To speed the deal along, AHERF first inserted its own new CEO in September 1996, and then transferred the Graduate assets into a holding company called SDN (a similar vehicle was used to handle the acquisition of the United Hospitals), after which due diligence was conducted. The deal was consummated despite all of the well-known financial problems of Graduate (mentioned earlier). This process suggests that speedy acquisition was more important than up-front due diligence.

Third, the disposition of AHERF's CEO was to "get things done quickly". With the possible exception of MCP, AHERF followed no formal strategic plan in pursuing its various acquisitions. Instead, AHERF's strategy was characterized as "doing what the CEO wanted to do" or "doing what he thought was the most appropriate thing as of that moment". The CEO spotted "opportunities" in the market (typically distressed hospital assets available for sale) and took advantage of them. In addition, hospital system executives in the Philadelphia market suggest that AHERF's CEO treated his system like a for-profit company by trying to grow it at a 15 percent annual rate; unfortunately, AHERF and other systems were really nonprofit organizations and very low margin businesses. The end result of AHERF's strategy of "leading with speed" was a hastily-built, complex, and unwieldy organization.

AHERF's "realized strategy" ran counter even to its own strategy espoused years earlier when it was known as Allegheny Health Services Inc. (AHSI). The strategy called for acquisitions to create an IDS. However, management and the board of AHSI believed they could only effectively operate a finite number of new acquisitions; each potential acquisition must be carefully screened and measured for its market position, projected profitability, impact on AHSI financial statements, and ability to serve AHSI's mission of promoting the general health of its community.

The strategy also ran counter to the recommendations of Ernst & Whinney consultants brought in by then CEO David Campbell in 1985. Ernst & Whinney suggested that AHSI (a) simplify the board structure and corporate governance, (b) expand the PCP base of the medical staff at AGH to strengthen control of its referral base, (c) commence cost controls and productivity improvements to lower the cost per case at AGH, and (d) organize an alternative delivery system (e.g., with its own insurance product) on a test-market (i.e., pilot, experimental) basis. AHERF ignored virtually all of these recommendations by complicating the AHERF corporate structure, neglecting cost controls and productivity improvements in favor of expansion and diversification, and entering risk contracts on a large-scale basis with no prior test marketing. Indeed, a major shortcoming of AHERF during the 1990s was its failure to consolidate the many acquisitions they had made during a ten-year period (1987-1997), to physically merge the operations of their hospitals and medical schools, to reduce their costs of operation and thereby have an improved chance of living with increasingly lower reimbursements from insurers. AHERF even neglected to revisit its earlier acquisitions to see how they had performed prior to making new acquisitions.

Strategies and Deals Act as Dominoes

Another reason for the joint pursuit of all of these strategies is that one strategy or deal exerted a domino effect on subsequent strategies and deals. With regard to the broad strategies pursued, the pursuit of the capitated risk contracts from insurers left systems like AHERF with the need to manage the health status and primary care utilization of its enrollees. But AHERF was a system built upon multiple acute-care hospitals. In order to accept and manage patient risk, AHERF would need to have a network of primary care physicians (PCPs) that could treat at-risk patients in less-costly settings than the hospital. Thus, the strategy to diversify into risk contracts gave rise to the strategy of vertical integration into the physician market. The acquisition of PCPs also exerted a feedback effect on AHERF's risk contracting strategy. By acquiring more PCP practices, AHERF believed it could exert more bargaining leverage with HMOs, which spurred AHERF on to pursue more risk contracts.

AGH's strategy to secure a major medical school affiliation led it to acquire MCP Hospital and Medical School in Philadelphia. Because MCP Hospital lacked a strong pediatrics program, AHERF pursued the acquisition of St. Christopher's Hospital for Children - - which further required the acquisition of the entire United Hospitals system. Because MCP Medical School also lacked a highly regarded clinicians in key areas (e.g., cardiology), AHERF pursued the acquisition of Hahnemann University Hospital and its medical school to shore up weaknesses in MCP. AHERF's acquisition of MCP also included its acquisition of the Sidney Hillman Medical Center. This represented AHERF's first acquisition in the physician market.

In a similar vein, AHERF's acquisition of United Hospitals gave it a community hospital presence to the northeast of Philadelphia. Many of the physicians who utilized and admitted patients to these community hospitals were physicians whose practices had already been acquired by an entrepreneur (Harvey Levy) and organized as Suburban Medical Associates. AHERF discovered that it had acquired the hospitals but lacked control over the community physicians who kept the hospitals busy. Because the United acquisition was seen as vulnerable to anyone who controlled the community physicians, AHERF decided to acquire Suburban Medical Associates. This marked AHERF's second acquisition in the physician market. This established a pattern in AHERF's strategic moves: acquisition of hospitals went hand-in-hand with acquisition of physician practices in the surrounding area as a defensive move to protect the hospital's admissions and referral base.

Irreversible Strategies

The foregoing analysis leads to a further conclusion regarding AHERF's strategy: it was set in stone and irreversible. Sherif Abdelhak had imagined conglomerate diversification into medical school activities as early as 1982. The idea of AGH having its own medical school to compete with UPMC and reduce its dependence on its arch rival in Pittsburgh held sway among top AHERF executives and board members. The idea sat around until Abdelhak became CEO and the MCP medical school became available for acquisition. Consultants in Pittsburgh suggest that Abdelhak's ultimate plan was to either relocate the medical school from Philadelphia to Pittsburgh to directly

compete with UPMC, or at least develop a Pittsburgh campus. Lending credence to this argument, AHERF had reportedly already purchased the land to do so to the north of Pittsburgh.

In a similar vein, the IDS plan had been firmly established in AHSI/AHERF strategy since the mid-1980s under prior CEOs (including both John Westerman and David Campbell). Some of this prior thinking had been shaped by AGH's membership in the Voluntary Hospitals of America (VHA), a hospital consortium and group purchasing organization, which began recommending the IDS strategy to its member hospitals in the 1980s and especially in the 1990s. The IDS strategy also developed and was reinforced and refined in the CEO's mind as the domino effect of acquisitions progressed and the different pieces of an IDS (i.e., tertiary care hospitals, community hospitals, community physicians, risk contracting) were assembled. The validation of the IDS strategy came with the proposed Clinton Health Plan in 1993, which advocated the development of organized provider networks in local markets to contract with state health insurance purchasing cooperatives. The Clinton Plan was shortly followed by AHERF's Delaware Valley Planning Initiative (DVPI). The DVPI advocated the recruitment of outstanding clinical scholars in four areas to beef up and expand AHERF's biomedical research programs, the acquisition or affiliation with 100 or more PCP delivery sites, the assumption of risk contracts for 500,000 patient lives, and the development of a full range of inpatient and outpatient facilities.

Growth was another recurrent theme in AHSI/AHERF planning documents stemming back to the mid-1980s. In a 1986 memo to the then CEO, AHSI's CFO forecast a new competitive market in which hospital patient volumes would drop 20-30 percent over ten years as managed care organizations grew in stature and steered patients to selected physicians and hospitals. At the same time, the CFO forecast an increase in AHSI revenues to $1 billion, split between healthcare activities (60%) and non-healthcare activities (40%). Such growth was only to be achieved through "an aggressive strategy of acquisitions". The growth theme was continually repeated in subsequent AHSI/AHERF planning documents in terms of expanding the number of hospitals in the network, the number of PCPs to be acquired, and the number of at-risk contracted lives.

AHERF's growth-oriented mindset paralleled the prevailing thinking among many hospital executives at the time that "you don't shrink your way to greatness"; instead, you can "grow your way out of your problems". AHERF's CEO reportedly told his own executives and the executives of the HMOs it contracted with that "we have the losses under control" and "we can turn this around".

As noted above, a major reason why AHERF persisted with the IDS strategy was that it had the financial wherewithal to support it. Recent research shows that IDSs with greater margins in the early 1990s invested more heavily in their IDS strategies during the later 1990s, and subsequently lost more money. The operating profits of AHERF's founding hospital and flagship institution, AGH in Pittsburgh, served as the cash engine to support the expansion into Philadelphia and the subsidization of its many financially struggling acquisitions there. AGH profits during the period 1989-1993 reportedly totaled $98 million. The expansion and subsidization of Philadelphia continued until AGH would no longer continue support. Thus, while the operating revenues, operating margins, and cash flow of AGH had begun to shrink starting in 1994, it was not until 1997 and continuing into 1998 when cash ran short that AGH withdrew support. At this time, AHERF put on hold any further acquisition of physicians in the Philadelphia market, and adopted Abdelhak's plan to sell some of the Philadelphia hospitals to raise cash. However, there was no discussion of reversing the strategies pursued for so long.

A final reason why the strategy was irreversible is that AHERF had built a large, complex organization with many diverse components (i.e., a conglomerate). Management research demonstrates that it is much harder to change such an organization (e.g., a large vertically-integrated firm) and turn it around, compared to a smaller firm.

The University of Pennsylvania Health System (UPHS), which had built a slimmer version of what AHERF had constructed, poses an interesting comparison with AHERF. Like AHERF, UPHS started as a single hospital (Hospital of the University of Pennsylvania, or HUP) that then acquired several community hospitals and physician practices. UPHS was created in 1993 around HUP and its physician practice plan, added Presbyterian Hospital in 1995, and then added Pennsylvania Hospital and Phoenixville Hospital in 1997. Like AHERF, the hospital acquisitions were partially driven out of a desire to build an integrated delivery system (IDS), partly out of fear that other rival

systems (Jefferson, AHERF) might acquire the hospitals that were either in Penn's backyard or had historically had teaching affiliations with Penn. Like AHERF, UPHS also began its acquisition of PCPs starting in late 1993 and 1994 in response to the proposed Clinton Health Plan, the anticipation of capitated contracting with insurers, and Penn's desire to develop an insurance product of its own and learn how to manage risk inside its own network of providers. Finally, like AHERF, UPHS issued hundreds of millions of dollars in bonds in 1994 and 1996.

Why then didn't UPHS go bankrupt, given it pursued the same strategy in the same unforgiving marketplace? First, its diversification effort was not as radical as the AHERF strategy. UPHS acquired only three hospitals, not thirteen; UPHS acquired 300 PCPs, not 552; UPHS stayed in one market, rather than diversify into two; and UPHS already possessed a medical school, which was the market leader in both prestige and funding from the National Institutes of Health (NIH). Second, UPHS started from a stronger base of AMCs in Philadelphia and exercised better due diligence in its horizontal integration strategy. As a consequence, UPHS possessed something that AHERF did not in the Philadelphia metropolitan market: hospitals that payers wanted to include in their network (e.g., HUP, Pennsylvania Hospital) or hospitals in growing suburban corridors (e.g., Phoenixville). Third, during the critical years in which payers radically reduced hospital reimbursements, UPHS either maintained its profitability (through 1996) or broke even (in 1997). Fourth, despite a combined loss of roughly $300 million in FY 1998-1999, the system still had $270 million in liquid assets as of March 2000 (based on retained earnings or borrowings from the 1990s). Fifth, it was essentially impossible for UPHS to enter bankruptcy. HUP was an unincorporated operating division of the University of Pennsylvania. Thus, for HUP to go bankrupt, the University would need to enter bankruptcy court - - an unlikely possibility for an Ivy League university. Sixth, UPHS engaged in a multi-year effort to effect its own financial turnaround, largely by gradually shedding the types of components both it and AHERF had assiduously built up over time. To help with the turnaround, the University increased the amount of its funding to the medical school and relieved the health system of part of this burden. In contrast, AHERF's Philadelphia operations were curtailed in 1997 and dumped overboard by mid-1998 even though its major creditors had offered continuing support.

4. Financial Problems with AHERF's Philadelphia Hospitals

A major contributing factor to AHERF's bankruptcy was the poor financial status of the hospitals and other institutions acquired in Philadelphia. Not only were these facilities poor performers prior to acquisition by AHERF, but (with some exceptions) they also continued to exhibit low performance during the 1990s. This chronic underperformance belies any claims that AHERF had adequately screened potential candidates for its aggressive acquisition strategy or that AHERF could turn its troubled operations around using AHERF management and systems once acquired.

The first section below selectively examines the financial condition of AHERF's individual hospital acquisition targets (prior to acquisition) where data are available. Data reported here are taken from the "Financial Reports" published for all hospitals by their fiscal years in the Commonwealth of Pennsylvania by the Pennsylvania Health Care Cost Containment Council. These data are shown here because they were publicly reported and available to the hospital community.

The second section below examines the financial performance of AHERF's hospitals as systems relative to other Philadelphia-based hospital systems during two periods: from Fiscal Year (FY) 1990-1998 and from FY 1990-1996. Financial performance is measured using various financial ratios available from the Medicare Cost Reports, again issued annually for all hospitals by their fiscal years. The first period (1990-1998) is chosen because Medicare Cost Report data for AHERF's hospitals are available back to 1990, and because the hospitals went bankrupt in 1998. The second, shorter period (1990-1996) is chosen because of the claim by the Plaintiff that a turnaround of AHERF could have been accomplished commencing in the Fall of 1996, and because the literature on corporate bankruptcy suggests that financial ratios can predict bankruptcy two years prior to bankruptcy filing. The year 1996 represents two years prior to the 1998 bankruptcy of AHERF. The last section examines some of the factors underlying this poor financial performance.

Hospital Financial Condition Prior to AHERF Acquisition

Medical College of Pennsylvania (MCP). AHERF's first acquisition in the Philadelphia market was MCP Hospital and its medical school in 1987. In FY 1986 MCP

had a slim operating margin (reportedly less than 2 percent: $1 million in excess operating revenues on a total revenue base of $87 million). In 1987, MCP broke even on its operations and, after factoring in non-operating revenues, had low net income ($1.5 million). Its financial problems were due to the erosion of its tertiary care admissions, its heavy reliance on admissions from its emergency room, and a high indigent patient care load. Despite a building program in 1984, MCP still had a strong demand for capital totaling $30 million over the next five years. However, Coopers & Lybrand projected a $20 million loss over the next five years. In FY 1988, MCP had a -$6.3 million operating loss and a -$3.1 million net operating loss; in FY 1989, these losses were reduced (-$2.8 million and -$4.3 million, respectively) but still sizeable. The hospital was forced to make layoffs in Fall 1987, eliminating 162 positions.

MCP was already saddled with $37 million in long-term debt. MCP had low internal cash balances, only $10 million in endowment, and no debt capacity remaining to meet its capital needs. Moreover, the bonds issued in the 1980s for a hospital addition had the lowest credit rating (BBB from Standard & Poors, Baa from Moody's) of any medical school in the city. It also could not refund its current debt.

MCP was well aware of its poor financial situation. Its 1982 strategic plan included an "intent to merge" statement. In 1985, it held discussions with national investor-owned hospital chains and local nonprofit hospitals regarding acquisition. A "Merger Committee" was formed in 1986 to seek an appropriate partner. Thus, at the time AGH/AHSI began looking for a medical school to acquire or affiliate, a willing but weak target was already entering the market.

AHERF not only acquired MCP, it paid a lot for it. First Boston estimated MCP's sale value at only $20-30 million. It valued AHSI's offer for MCP at anywhere from $95 million to $160 million; that is, AHSI's offer exceeded MCP's value by a factor of 3:1 to 5:1.

United Hospitals Inc. AHERF's next acquisition was the United Hospitals system. United consisted of four hospitals - - Lawndale Community, Rolling Hill (Elkins Park, PA), Warminster General, and St. Christopher's Hospital for Children - - that had coalesced in 1980. The system had formed in an effort to keep St. Christopher's financially viable, using revenues from the other three community hospitals. The latter

had been profitable under the old cost-reimbursement system, but began losing money with changes in governmental reimbursement and greater hospital competition.

The system had a total debt of $130 million, stemming from a 1980 bond offering and a more recent $31 million offering to finance a new campus at St. Christopher's. For FY 1987, United had a total operating surplus of $2.2 million on a total revenue base of $146.2 million (operating margin of only 1.5%). According to figures from the Pennsylvania Health Care Cost Containment Council, for FY 1989, 1990, and 1991 - - the three years leading up the its acquisition by AHERF - - the United system was progressively losing money, as follows:

	1989 Operating Income (Loss)	1989 Net Income (Loss)
Lawndale Community	$0.427 million	$0.645 million
Rolling Hill	($5.875 million)	($4.755 million)
Warminster General	($1.210 million)	($0.551 million)
St. Christopher's	($2.772 million)	($0.645 million)
TOTAL	($9.430 million)	($5.306 million)

	1990 Operating Income (Loss)	1990 Net Income (Loss)
Lawndale Community	($0.797 million)	($0.236 million)
Rolling Hill	($0.497 million)	$0.045 million
Warminster General	($1.072 million)	($0.872 million)
St. Christopher's	($7.627 million)	($6.004 million)
TOTAL	($9.993 million)	($7.067 million)

	1991 Operating Income (Loss)	1991 Net Income (Loss)
Lawndale Community	($ 3.223 million)	($ 3.081 million)
Rolling Hill	($14.956 million)	($14.726 million
Warminster General	($ 4.098 million)	($ 3.982 million)
St. Christopher's	($ 7.878 million)	($ 5.993 million)
TOTAL	($30.115 million)	($27.782 million)

These figures translate into negative operating margins during 1989. 1990, and 1991 that range from a low of -1 percent to a high of -30 percent at Rolling Hill, from +3 to -39 percent at Lawndale, from -3 to -13 percent at Warminster, and from -4 to -12 percent at St. Christopher's. Some of the reasons for United's poor financial health included

overlap in the service areas on the three non-pediatric hospitals, competition from other suburban hospitals, low reputation, and competition for pediatric patients from several other childrens' hospitals in the Philadelphia and Wilmington (Delaware) area.

To combat these financial problems, United pursued several strategies. For example, United had tried unsuccessfully to merge with other larger hospitals during the 1980s: Graduate Hospital (in 1986), Temple University Hospital, Albert Einstein Hospital, and Hahnemann University Hospital (in 1988). Hahnemann passed on the United deal, citing its weak financial health and United's huge need for capital to effect a turnaround. By 1991, the system was contemplating bankruptcy. AHERF's offer to buy the system in late 1991 provided it with a stay of execution. Nevertheless, shortly after its acquisition by AHERF, Lawndale Hospital was closed and sold to a long-term care company (Vencor) for only $1.9 million. AHERF reportedly took a loss on the sale.

Hahnemann University Hospital. Hahnemann University Hospital (HUH) had "a long history of underachievement". It lost nearly $6 million in 1977, it defaulted on its bonds, and reportedly flirted with bankruptcy into the early 1980s when it lived off of a line of credit from banks. HUH had only $7 million in endowment, meaning it had little non-operating income to rely on. Much of its endowment had reportedly been eroded by the earlier bond default. HUH may have also faced difficulties in fundraising from the alumni of its medical school, perhaps because it had historically been a school of homeopathy. By 1985, the hospital barely earned a profit.

The hospital's fortunes improved somewhat starting in 1986, when it made a sizeable operating profit (estimated between $11-15 million). This, however, was followed by five years of more modest operating profits (ranging from $1-5 million in FY 1987-1991), representing an operating margin of only 0.5 to 2 percent. Similar operating margins were earned in the next two years (1992-1993) leading up to the time of acquisition by AHERF.

Several factors contributed to HUH's meager margins. First, it reportedly had outdated HMO agreements and payer rates that had not been renegotiated for years. Indeed, for FY 1993, HUH lost $10.8 million on its HMO contracts due to these low reimbursement rates. Second, HUH began to feel the pressure of managed care as its once indemnity patients now were managed care patients and thus reimbursed for 20-40

percent less. Third, HUH also reportedly had a high level of uncompensated care (estimated at $16 million), much more than its AMC counterparts at Penn and Jefferson. Fourth, Hahnemann also carried $152 million in debt that had to be serviced. Fifth, its medical school also had operating problems. A budget shortfall in early 1990 meant that hospital operations could no longer subsidize the research and educational functions of the University. Hahnemann cut not only hospital staff but also sought to reduce the size of its faculty. The University's operating loss for the first six months of FY 1990 was $4.7 million; for the first eight months of FY 1992 the loss was $3.6 million.

Graduate Health System. Graduate Health System comprised several facilities: Graduate Hospital in downtown Philadelphia, Mt. Sinai Hospital, two osteopathic hospitals (Parkview and City Avenue), and a two-hospital system in New Jersey (Zurbrugg). Most of these entities had troubled past histories. The financial results for the four Philadelphia facilities during the early 1990s prior to the AHERF acquisition are presented below, based on figures published by the Pennsylvania Health Care Cost Containment Council:

	1990 Operating Income (Loss)	1990 Net Income (Loss)
Graduate Hospital	$ 4.371 million	$ 6.180 million
Mt. Sinai Hospital	($16.833 million)	($16.830 million)
City Avenue Hospital	($ 7.020 million)	($ 5.936 million)
Parkview Hospital	not available[1]	not available
TOTAL	($19.482 million)	($16.586 million)

	1991 Operating Income (Loss)	1991 Net Income (Loss)
Graduate Hospital	$ 4.597 million	$7.017 million
Mt. Sinai Hospital	($ 0.880 million)	($0.846 million)
City Avenue Hospital }	$2.656 million[2]	$4.223 million
Parkview Hospital }		
TOTAL	$6.373 million	$10.394 million

[1] During fiscal year 1990, Parkview was a division of the Metropolitan Hospitals.
[2] During fiscal years 1991 through 1993, Parkview's results are reported with City Avenue Hospital.

	1992 Operating Income (Loss)	1992 Net Income (Loss)
Graduate Hospital	$5.812 million	$7.212 million
Mt. Sinai Hospital	$0.253 million	$0.037 million
City Avenue Hospital }	($3.200 million)	($3.200 million)
Parkview Hospital }		
TOTAL	$2.865 million	$4.049 million

	1993 Operating Income (Loss)	1993 Net Income (Loss)
Graduate Hospital	$4.175 million	$ 6.148 million
Mt. Sinai Hospital	$0.346 million	$ 0.407 million
City Avenue Hospital }	($3.867 million)	($3.867 million)
Parkview Hospital }		
TOTAL	$0.654 million	$2.688 million

	1994 Operating Income (Loss)	1994 Net Income (Loss)
Graduate Hospital	$2.349 million	$6.003 million
Mt. Sinai Hospital	$0.620 million	$0.731 million
City Avenue Hospital	($3.618 million)	($3.591 million)
Parkview Hospital	($3.168 million)	($2.062 million)
TOTAL	($3.817 million)	$1.081 million

	1995 Operating Income (Loss)	1995 Net Income (Loss)
Graduate Hospital	($3.774 million)	$0.090 million
Mt. Sinai Hospital	($0.197 million)	$0.028 million
City Avenue Hospital	($1.785 million)	($1.785 million)
Parkview Hospital	($3.091 million)	($2.243 million)
TOTAL	($8.847 million)	($3.910 million)

	1996 Operating Income (Loss)	1996 Net Income (Loss)
Graduate Hospital	na	($0.782 million)
Mt. Sinai Hospital	na	($0.950 million)
City Avenue Hospital	na	($3.931 million)
Parkview Hospital	na	($2.288 million)
TOTAL	na	($7.951 million)

The figures document growing operating losses and net losses over the seven-year period leading up to the acquisition by AHERF. They translate into falling operating margins at Graduate Hospital from +3 to -2 percent, and from +2 to -3 percent at City Avenue Hospital.

As noted above, Graduate Hospital was divested by the University of Pennsylvania in 1977. Two years earlier, the hospital almost closed, and was referred to as "a prime candidate for a going out of business sale". A parent corporation, Graduate Health System (GHS), was established to run the hospital in the early 1980s. In 1984, the system acquired a local HMO from John Hancock to develop an IDS. Hospital operations turned around somewhat and Graduate earned modest revenues during the late 1980s and early 1990s. Its operating margins were quite meager and declined over time, however. Starting from a high of 4.3% in 1989, the margins ranged from 3.1% to 3.4% between 1990-1992, then dropped to 2.3% in 1993, 1.3% in 1994, –2.2% (-9.9%) in 1995, and to –19.2% in 1996.

In 1988 and 1989, GHS reached agreements to acquire Mt. Sinai and the two Zurbrugg hospitals, respectively; in 1993, GHS acquired the two osteopathic hospitals. Their financial condition and operating margins were worse than those of Graduate Hospital. Mt. Sinai had originally been the Mt. Sinai-Daroff Division of the Albert Einstein Health Foundation; the Division was itself the product of a 1952 merger of Mt. Sinai Hospital and Jewish Hospital. Albert Einstein had spent $30 million on renovations to Mt. Sinai in 1983, leaving it with a huge debt to service. The hospital suffered from low occupancy (estimated at 54%) and a high Medicaid patient mix, and historically lost $2.5 - $3.5 million per year. GHS purchased Mt. Sinai from Albert Einstein in 1988 for $10.8 million, thinking it could serve as a primary care hospital to feed the tertiary care site at Graduate Hospital. GHS also reportedly had plans to convert Mt. Sinai to a psychiatric/rehabilitation hospital to treat drug and alcohol addiction cases. After acquisition by GHS, Mt. Sinai posted a net loss of -$10.3 million in FY 1989 and an operating loss of -$16.8 million in FY 1990. The hospital ceased acute care operations in the early 1990s. Based on their audited financial statements, the combined Graduate Hospital and Mt. Sinai Hospital obligated group recorded operating losses of $2.372 million and $12.496 million in FY 1995 and 1996, respectively.

The two osteopathic facilities - - City Avenue and Parkview - - were part of Osteopathic Hospital System. The system had formed in 1990 as part of the aftermath of the 1989 bankruptcy of the Metropolitan Hospital System. Osteopathic had operating problems from the beginning, much like its predecessor system Metropolitan. The system recorded a loss in FY 1990 of -$6.3 million and only a small gain in FY 1991 of $1 million. The system sold two of its hospitals to GHS in 1993 for $18.9 million plus the assumption of $29 million in liabilities $18 million in subordinated notes. The two hospitals recorded an operating loss of $4.897 million and $6.904 million in FY 1995 and FY 1996, respectively.

Summary of Financial Condition Prior to Acquisition. The preceding sections document the troubled financial condition of each of the hospitals or systems prior to their acquisition by AHERF. The common themes here are low or negative operating margins, declining margins over time, high levels of debt to be serviced, and a past history of bond defaults and bankruptcy.

System Financial Condition during the 1990-1998 Period Relative to Competitors

Using the more extensive database from the Medicare Cost reports (which contain detailed financial ratios), AHERF's acquisitions can be compared to competitor systems in Philadelphia during the period 1990-1998. A system-level analysis is useful because it helps to band AHERF's acquisitions together into logical groupings and because it facilitates comparison with the large number of other hospitals in the Philadelphia metropolitan area. It is also mirrors the reality of the Philadelphia hospital market, which began consolidation in the 1980s and intensified in consolidation in the 1990s.

AHERF and competitor hospitals were grouped together in a manner consistent with the criteria above. Within AHERF, three hospital groupings were established: the two teaching hospitals (MCP Hospital and Hahnemann University Hospital), the four United hospitals, and the four Graduate hospitals in Philadelphia. AHERF's competitors included the University of Pennsylvania, the Jefferson Health System, Temple University Health System, Crozer-Keystone Health System, Mercy Health System (which joins Catholic Health East, or CHE), and Franciscan (which joins Catholic Health Initiatives, or CHI). Each of these competitors had multiple hospitals that joined at various times.

Any comparative analysis of system performance needs to take account of these timing issues - - i.e., the fact that hospitals join systems at different times and thus, that system membership can exert effects on subsequent hospital performance. Thus, to make meaningful comparisons, hospitals are first grouped by the system they join and then broken out into clusters of hospitals that join these systems at different periods in the 1990s. The resulting categorization yields three groups of AHERF hospitals, nine groups of competitors organized into systems, and one group of freestanding, independent hospitals.

The methodology to establish the system groupings and timing of system formation and membership by joining hospitals was based on two related procedures: (1) an analysis of the system membership codes of Philadelphia hospitals year-by-year using the Annual Guide Issue of the American Hospital Association (AHA), and (2) consultation with the AHA staff who conduct the survey and maintain the database. This methodology led to the construction of the following hospital groupings for comparison:

> *Graduate Health System* includes the four Philadelphia facilities identified above: Graduate Hospital, Mt. Sinai, City Avenue, and Parkview.
>
> *United Hospitals* includes the four United hospitals identified above: Rolling Hill, Lawndale, Warminster, and Sat. Christopher's.
>
> *Allegheny Teaching* hospitals includes MCP Hospital and Hahnemann University Hospital.
>
> The University of Pennsylvania Health System started with the Hospital of the University of Pennsylvania (HUP) in 1993, added on Presbyterian Medical Center in 1995, and then added two more hospitals in 1998 (Pennsylvania Hospital and Phoenixville Hospital). For our comparisons, the first two hospitals are referred to as *University of Pennsylvania* and the latter two are referred to as *University of Pennsylvania - Late Acquisitions*.
>
> The Jefferson Health System started with Thomas Jefferson University Hospital, which then merged with Jefferson Park Hospital in 1992 and with Methodist Hospital in 1996. These are collectively referred to as *Thomas Jefferson University*. Jefferson then made a number of later strategic alliances followed by acquisitions of the following facilities: Frankford Hospital (1998), Delaware Valley Medical Center (late 1998-early 1999, and Germantown Hospital (Fall 1997). These are collectively referred to as *Thomas Jefferson University – Late Acquisitions*.

The Jefferson Health Network also included a strategic alliance with Main Line Health, a three-hospital system in the Northwest suburbs of Philadelphia. *Main Line Health*, which formed in the early 1980s, includes Bryn Mawr, Lankenau, and Paoli Memorial Hospitals. They are considered separately from the other Jefferson hospitals.

Temple University formed the *Temple University Health System* (TUHS) in 1996 around Temple University Hospital and its new children's hospital. By 1998, TUHS had made several alliances and acquisitions involving Lower Bucks Hospital (Fall 1997), Jeanes Hospital (Fall 1997), Neumann Medical Center (Summer 1998), and Northeastern Hospital (Summer 1998). These are collectively referred to as *Temple University – Late Acquisitions*.

Crozer-Keystone Health System (CKHS) formed in 1990 around the flagship hospital Crozer-Chester Medical Center, Delaware County Memorial, and Quakertown Community Hospital. By 1994, it had added Sacred Heart Medical Center, and by 1997 Taylor Hospital.

The Eastern Mercy Health System was originally organized around two hospitals: Fitzgerald and Misericordia. In 1991, a third hospital (Haverford Community) was added to the system. The system was subsequently acquired by Catholic Health East. These hospitals are collectively referred to as *Mercy Hospitals/Catholic Health East.*

Franciscan Health System initially included two hospitals: St. Mary's Hospital (Langhorne) and St. Agnes Hospital. In 1994, the system added a third hospital (Nazareth Hospital). In 1996, the system became part of Catholic Health Initiatives (CHI). The three hospitals are collectively referred to as *Franciscan/CHI.*

Two other hospitals (Girard Medical Center and St.Joseph's) formed the *North Philadelphia Health System* in 1990 out of the bankruptcy of the two facilities. Due to missing financial data for most years of their operation, they are omitted here from the analysis.

All other hospitals either remained free-standing or joined systems after the 1998 period. They are collectively referred to here as *Independent.*

For the period 1990-1998, two of AHERF's component systems (Allegheny Teaching, Graduate) were chronic underperformers on many financial indicators. The two Allegheny Teaching hospitals, for example, ranked poorly on two measures of cash flow: 11th out of 13 systems on "cash flow to total debt", 12th out of 13 systems on "cash

flow margin", and 13th out of 13 systems on "days in accounts receivable". The Allegheny Teaching hospitals also ranked poorly on their levels of staffing and expenses needed to provide care: 12th out of 13 hospitals on "expenses per adjusted admission", 13th out of 13 systems on "number of FTEs per 100 adjusted admissions", and 13th out of 13 systems on "number of FTEs per adjusted average daily census". One reason why these statistics are so important is that the two teaching hospitals accounted for roughly 50% of AHERF's revenues in Philadelphia.

The Graduate Hospitals were chronic underperformers on many indicators of cash flow, liquidity, operating efficiency, and debt structure. Graduate ranked 13th out of 13 systems on "cash flow to total debt" and "cash flow margin", 9th out of 13 systems on "current ratio", 11th out of 13 systems on "debt to beds", 13th out of 13 on "long-term debt to total assets" and "long-term debt to capitalization" and "debt to equity", 13th out of 13 systems on operating margin, 11th out of 13 systems on "days in accounts receivable", and 10th out of 13 systems on "expense per adjusted admission".

A separate set of analyses focused on the period 1990-1996 to see if similar patterns were present. The analyses showed that indeed they were: the difficulties at AHERF were already obvious by 1996. Multiple regression techniques were utilized to compare AHERF's three component systems (United, Allegheny Teaching, and Graduate) with all other systems. Regression results show that the Allegheny Teaching hospitals exhibited significantly higher expense per admission, staffing per admission, and days in AR compared to all other systems and AHERF components. The results further showed that the Graduate hospitals exhibited (a) significantly higher expense per admission, days in AR, and debt per bed compared to other systems, and (b) significantly lower cash flow margins, operating margin, and net margin. Thus, at least two major components of AHERF in Philadelphia (Allegheny Teaching hospitals, and Graduate hospitals) were chronic financial underperformers compared to other systems in the city.

Thus, consistent with the corporate bankruptcy literature, the failing AHERF hospitals in the Eastern (Philadelphia) Region displayed chronic financial distress for several years leading up to the 1998 bankruptcy. By 1996, two years before the filing, there were many and obvious signs of weakness and volatility in the earnings of the AHERF hospitals.

Factors Underlying AHERF's Poor Financial Performance

There were some major structural factors underlying AHERF's poor financial performance. A major problem was the location of AHERF's hospitals (especially Allegheny Teaching and Graduate) in the city of Philadelphia, rather than the suburbs. AHERF had two teaching hospitals near the center of the city that directly competed with other large AMCs. Moreover, the city (Philadelphia County, more properly) was suffering population decline - - a topic explored more fully in analyses below.

Regression analyses were conducted to examine the relative impact of system membership versus suburban location on the financial performance of hospitals in the metropolitan area. The results indicate that suburban location has a more pervasive and positive impact on financial success than does system membership. In other words, suburban hospitals perform better in this market than do system hospitals. There is also an interaction effect: suburban hospitals that are members of multi-hospital systems achieve high performance. These results hold for both reporting periods above, 1990-1998 and 1990-1996. These results are relevant because AHERF built its strategy around two urban-based systems (Allegheny Teaching, Graduate) rather than around suburban-based systems. The system-building effect was not nearly as important as the suburban location effect.

Another set of analyses examined the impact of system membership and suburban location on changes in admissions between 1994 and 1998. These analyses used available discharge data from the Commonwealth of Pennsylvania. The analyses show that system membership exerted no significant impact on changes in hospital admissions. Indeed, the volume of admissions and market share of each of AHERF's three components stayed fairly flat during the 1994-1998 period. That is, despite the formation of a multi-hospital system, AHERF achieved no organic growth among its acquired hospitals. By contrast, suburban location exerted a marginally significant and positive impact on hospital admissions. Thus again, suburban location was more important than system building for growing market share. For example, the largest gains in patient volume and market share in the metropolitan area were recorded by the Main Line Health system in the northwest suburbs. Large gains were also achieved by AHERF's

competitor in the city, the core hospitals of the University of Pennsylvania Health System.

It is also instructive to look at the discharge profiles of each of the three AHERF components during the 1994-98 period. The conclusion reached above regarding the absence of organic growth at AHERF actually masks two different and opposing trends: one occurring from 1994-96, the other occurring from 1996-98. From 1994-96, admissions grew at United Hospitals by 4,499 (21.3% change) and at Allegheny Teaching Hospitals by 4,247 (13.1% change). At Graduate, however, admissions fell by 3,614 (11.6% decrease). These figures constitute extremes in the Philadelphia market. From 1996-98, by contrast, admissions fell at Allegheny Teaching hospitals by 8,585 (23.5% drop) and at United by 3,779 (14.8% drop), whereas admissions at Graduate stabilized with a net loss of only 242 (-0.9% decrease). As part of this effort, for example, after the acquisition of Graduate, the CEO of AHERF attempted to turn City Avenue into a women's hospital. Whereas City Avenue had recorded the single largest drop in admissions from 1994-96 (3,106, or a 31.9% drop), admissions to the City Avenue facility in fact rose sharply by 3,726 (for a gain of 56%) between 1996 and 1998. However, City Avenue was the only hospital in AHERF's Philadelphia holdings to record any increase.

As noted earlier, the bulk of AHERF's hospital volume in Philadelphia was concentrated in its two teaching hospitals. Discharge data show that these facilities experienced inflection points in their volumes in Summer 1996 (for Hahnemann) and Summer 1997 (for MCP). Hahnemann's decline in the 1996-98 period more than doubled the decline at MCP (5,962 versus 2,623).

One important driver of this decline was the demise of Certificate of Need in the Commonwealth of Pennsylvania at the end of calendar year 1996, and the immediate entrance of new competitors for the cardiac business in Philadelphia, on which Hahnemann's strategy focused. Starting in January 1997, Abington Memorial Hospital quickly ramped up its volume of surgeries involving coronary artery bypass with grafts (CABG) to an average of 25 per month by 1998, and its volume of PCTA to 40-50 per month. Similarly, St. Mary Medical Center quickly ramped up its volume of CABGs to 20-25 per month by 1998 and its volume of PTCAs to 40-50 per month. Other suburban

hospitals likewise opened new heart programs (e.g., Lower Bucks Hospital, Doylestown Hospital, Frankford Hospital).

In the CABG market, there was no new patient demand; thus, the volume increases at the suburban hospitals came at the expense of urban tertiary hospitals. In the PTCA market, there was rising demand but AHERF's two hospitals captured a dwindling share of it. Hahnemann saw its CABG volume start dropping in mid-1996 and accelerate in late 1997 through 1998, falling from a high of roughly 120 cases per month to half that by mid-1998. Its PTCA volume also began to drop in late 1997 from a high of about 130 cases per month to roughly 80 in mid-1998. Likewise, MCP Hospital saw its CABG volume (lower than Hahnemann's) steeply drop in the latter half of 1997 and its PTCA volume steeply fall in early 1998. The declines in volume for these two procedures do not explain all of the lost business at the two teaching hospitals, but they represent two of the most lucrative services offered by the hospitals.

5. Problems Posed by the Philadelphia Market

The preceding section noted some structural factors that retarded AHERF's financial performance (competitive advantage of systems over independent hospitals, urban versus suburban location, concentration of its volume in two teaching hospitals). A broader set of structural factors, embedded in market characteristics of the Philadelphia metropolitan area, were also at work undermining the performance of AHERF's hospitals and those of its competitors. An analysis of these market factors is important for demonstrating the following two points: (1) AHERF made a poor choice of markets to enter as part of its geographic diversification strategy, and (2) AHERF made a further poor choice in focusing on the urban rather than suburban Philadelphia marketplace. As noted above, AHERF had little background knowledge and understanding the Philadelphia market. The analysis below describes the supply and demand factors in the market that made it such a difficult place for hospitals to compete in and survive. For each set of factors, one can demonstrate how different the Philadelphia metropolitan statistical area (MSA) is from other MSAs, and how different Philadelphia County (the urban city center) is from its collar, suburban counties. All of the differences discussed below are statistically significant, based on trend analyses during the period of 1990-1998

of (a) the Area Resource File maintained by the Bureau of Health Professions in the U.S. Department of Health & Human Services, (b) annual hospital surveys conducted by the American Hospital Association, and (c) annual census of HMOs conducted by InterStudy.

Demand Side Factors

Philadelphia MSA vs. Other MSA. Several demographic characteristics distinguish Philadelphia from other metropolitan areas. Philadelphia has a larger percentage of its population that is 65+ years in age, and thus eligible for Medicare. This makes hospitals in Philadelphia more sensitive to changes in the Medicare program, such as changes in reimbursement and shifts to managed care, since more of their patients are likely to be reimbursed by Medicare. Indeed, compared to other cities, Philadelphia has a much higher percentage of its elderly population enrolled in HMOs. It also has a much higher percentage of its Medicaid population enrolled in HMOs, and a much higher HMO penetration rate for the commercially-insured population as well. This is important, because the shift to managed care and the attendant decreases in reimbursement and drops in inpatient volume were likely to have a stronger impact on the Philadelphia market.

Philadelphia County vs. Suburban Counties. Within the Philadelphia metropolitan area, there are clear differences between the urban center and the suburban collar counties. First, there is a disparity and growing disparity in per capita income: residents of the four suburban counties (Montgomery, Delaware, Chester, and Bucks) have a higher per-capita income that is rising faster than the residents of Philadelphia County. Concomitantly, there is a growing disparity between the urban and suburban counties in the percentage of their population that is below the poverty line: Philadelphia County has a higher percentage that is growing faster. The result is a similar growing disparity in the percentage of hospital inpatient days that are consumed by Medicaid patients: Philadelphia hospitals have a higher percentage of Medicaid patients in their book of business. Consistent with these results, Philadelphia County has a higher percentage of its population that is minority, uninsured, and unemployed.

Second, Philadelphia County has suffered a massive population decline, while the four suburban counties have grown. Between 1950-2000, Philadelphia County lost 554,000 residents (26.7% decline), while the suburban counties gained 1,261,000 residents (117.7% increase). The largest drop in Philadelphia County population occurred in the 1970s (loss of 260,000 residents); the next largest drop occurred in the 1980s (loss of 102,000 residents); the 1990s witnessed further losses (loss of 68,000 residents). A good portion of this loss came from the loss of 100,000 manufacturing jobs after 1975 as the city transitioned from a manufacturing to a service economy.

Third, Philadelphia has an unusual market structure for health insurance. Economists define "market structure" in terms of the number of competitors and their relative share of the market. These two components are often summarized as the Herfindahl-Hirschman Index (HHI). This index measures how much market share is concentrated in one or a few large firms.[3] The higher the HHI, the more concentrated the market, and the more powerful are one or a few firms. According to the Department of Justice's Horizontal Merger Guidelines, markets with HHI greater than 1,800 are highly concentrated. The health insurance market in Philadelphia is quite concentrated, according to data from both InterStudy and health insurers' Annual Reports filed with the Pennsylvania Department of Insurance. Data from InterStudy indicates that the HHI for health maintenance organizations (HMOs) operating in the Philadelphia market was 4,134 in 1999 and 4,209 in 2000. Data from the Pennsylvania Department of Insurance indicates that the HMO market in Philadelphia has historically been highly concentrated and increasingly so: the HHI for HMOs has risen steadily from 1994 (HHI = 3,577) to 2000 (HHI = 4,603). Depending on which data source you use, this places Philadelphia in the top five percent (5%) most concentrated insurer markets in the U.S. with a million or more population.

To be sure, HMOs are only one part of the insurer market. One also needs to consider preferred provider organization (PPO) and point-of-service (POS) plans. A recent report that analyzes the market structure of large U.S. metropolitan areas with a million or more population found that Philadelphia had the fifth (5th) most concentrated

[3] The HHI is measured as the sum of the squared shares of each firm in the market. Thus, a market with three firms whose shares are 25%, 25%, and 50% would be equal to: $25^2 + 25^2 + 50^2 = 3,850$.

market for PPO enrollment, and the highest (#1) concentrated market for combined HMO and PPO enrollment (HHI = 3,643).

For both HMO and PPO products, Independence Blue Cross (IBC) is the market leader in Southeast Pennsylvania. In 1997, for example, IBC had captured 41.1% share of the HMO market through its Keystone Health Plan East subsidiary, and 68.5% share of the PPO market.

In sum, given its population demographics, the Philadelphia MSA was particularly sensitive to changes in Medicare and managed care. In addition, Philadelphia County was particularly sensitive to changes in Medicaid. Philadelphia County has also suffered a long-term decline in its population base and income. All of these demand factors suggest an increasingly challenging environment for hospitals: more managed care, more payer power over providers, pressure on inpatient reimbursement and volumes, falling patient demand, and a rise in the share of Medicaid and uninsured patients. Indeed, between 1990-1998, inpatient days at acute care hospitals in the MSA fell 31%.

Supply Side Factors

Philadelphia MSA vs. Other MSAs. These sobering shifts in demand were not matched by reductions in hospital supply capacity during the same period. From 1980 to 1998, the number of acute care hospitals in the MSA barely dropped. From 1990-1998, while inpatient days fell 31%, licensed hospital beds fell only 14%. Thus, hospitals remained open and many of their beds remained available.

Compared to the rest of the U.S., the Philadelphia MSA exhibited a much greater supply of hospital and physician capacity on the following dimensions:

- beds per 1,000 population
- full-time equivalent (FTE) hospital employees per hospital bed
- hospital FTEs per 1,000 population
- commercial inpatient days utilized per 1,000 population
- Medicare inpatient days utilized per 1,000 population
- percentage of hospitals with 500+ beds
- percentage of hospitals belonging to Council of Teaching Hospitals

- percentage of hospital expenses devoted to employee wages
- physicians per 1,000 population

In short, compared to other cities, the Philadelphia hospital market in the 1990s was over-bedded, over-staffed, over-utilized, over-sized, and over-doctored. A big contributor to this was the presence of five academic medical centers (AMCs) and three children's hospitals all in the same geographic area (with a fourth children's hospital in nearby Wilmington, DE). The market was thus very attractive to managed care firms seeking to exploit the excess utilization among providers (hospitals and physicians).

The structure of the hospital market in the Philadelphia area is also quite distinctive. During the 1990s, the hospital market featured lots of competition between lots of hospitals. The HHI for hospital services in Southeast Pennsylvania ranged from 185 – 654, depending on the year of measurement and whether one assessed market share in terms of beds or inpatient days. Regardless of which measure one used, this was a very competitive hospital market with low concentration. Philadelphia consistently ranked among the five (5) most competitive hospital markets (i.e., low HHI) in the U.S. with a million or more population. All of the hospital system formations during the 1990s barely raised the hospital HHI in Southeast Pennsylvania. This, too, made for a very inviting market for managed care firms to enter.

In sum, Philadelphia exhibits two contrasts with other large cities: a very competitive hospital market (low HHI) and a very concentrated insurer market (high HHI). This type of situation led to high levels of insurer market power over hospitals (and consumers of health insurance). Several studies conducted during the 1990s by the Delaware Valley Hospital Council suggest that IBC utilized its market power in ways detrimental to the cash flow of hospitals. For example, among commercial insurers during the mid-1990s, IBC exhibited the highest denial rate for hospital inpatient services - - both in terms of the percentage of patients denied and the percentage of inpatient days denied. Similarly, IBC and its HMO subsidiary (Keystone Health Plan East) exhibited the highest median payment denial rate for emergency room services. Finally, IBC exhibited the lowest access to acute rehabilitation services for its Medicare managed care enrollees. Other data collected by the Pennsylvania Medical Society and the American Hospital Association provide additional evidence for the exercise of market power by